

**IN THE CLAIMS:**

Please re-write the claims to read as follows:

- 1 1. (Previously Presented) A computer network having improved reliability in data  
2 transmissions, comprising:
  - 3 an interpreter in a switch for interpreting a special multicast address in a packet  
4 received by said switch, said switch in response to receipt of a packet having said special  
5 multicast address, replicating said packet by transmitting identical copies of said packet  
6 on a plurality of ports of said switch;
  - 7 a first router for receiving a first copy of said packet having said special multicast  
8 address transmitted from a first port of said plurality of ports of said switch, and a second  
9 router for receiving a second copy of said packet having said special multicast address,  
10 said second packet transmitted by a second port of said plurality of ports of said switch;
  - 11 a first plurality of subsequent routers connected to said first router along an in-  
12 tended path for said first copy of said packet, said intended path having a plurality of  
13 links, and said links assigned a low cost in a Link State Packet Routing sense; and
  - 14 a second plurality of routers connected to said second router along an intended  
15 path for said second copy of said packet, said intended path having a plurality of links,  
16 and said links assigned a low cost in a Link State Packet Routing sense, said first plural-  
17 ity of routers connected to said second plurality of routers by links having assigned high  
18 costs in a Link State Packet Routing sense.
- 1 2. (Previously Presented) A network device for forwarding voice packets on a computer  
2 network, comprising:

3           an input port for receiving said voice packet;

4           a plurality of output ports assigned for transmitting said voice packet out of said  
5 network device in the event that a received packet carries a special multicast address in a  
6 layer 2 destination address field of said received packet; and

7           a circuit to read said layer 2 destination address field of said received packet, and  
8 in the event that said special multicast address is found in said layer 2 destination address  
9 field of said received packet, to interpret said special multicast address as indicating that  
10 said received packet is said voice packet, and to transfer said voice packet to said plural-  
11 ity of output ports for transmission of replica packets of said voice packets through dif-  
12 ferent paths in said computer network, said paths having a low cost, in a Link State Pro-  
13 tocol (LSP) sense, said paths also having a high cost to links that would connect each of  
14 said different paths to each other, said high cost effectively maintaining a non-converging  
15 separateness between said different paths.

1    3. (Original) The apparatus of claim 2, further comprising: said network device is a  
2 layer 2 switch.

1    4. (Original) The apparatus of claim 2, further comprising: said network device is a  
2 router.

1    5. (Previously Presented) A method of improving reliability in data communications  
2 over a computer network, comprising:

3           receiving a voice data packet by a network device, replicating said voice data  
4 packet, and transmitting replica packets onto a first link and a second link;

5            assigning low cost to links, including said first link, in a first desired path through  
6   said computer network, said cost used by Link State Packet Routing protocol (LSP pro-  
7   tocol) to select a route through said network;

8            assigning low cost to links, including said second link, in a second desired path  
9   through said computer network; and

10           assigning high costs to links between said first desired path and said second de-  
11   sired path, so that in response to assigning low costs to links in said first and second de-  
12   sired paths, LSP protocol selects said first and second desired paths for transmitting said  
13   replica packets through said network, respectively, and in response to high costs assigned  
14   to said links between said first and second desired paths, LSP does not select links that  
15   would create a convergence of said first and second desired paths.

1   6. (Previously Presented) A method of improving reliability in data communications  
2   over a computer network, comprising:

3            receiving a voice data packet by a network device, replicating said voice data  
4   packet, and transmitting replica packets onto a first link and a second link;

5            assigning low cost to links, including said first link, in a first desired path through  
6   said computer network, said cost used by Link State Packet Routing protocol (LSP pro-  
7   tocol) to select a route through said network;

8            assigning low cost to links, including said second link, in a second desired path  
9   through said computer network;

10           assigning high costs to links between said first desired path and said second de-  
11   sired path, so that in response to assigning low costs to links in said first and second de-  
12   sired paths, LSP protocol selects said first and second desired paths for transmitting said  
13   replica packets through said network, respectively, and in response to high costs assigned  
14   to said links between said first and second desired paths, LSP does not select links that  
15   would create a convergence of said first and second desired paths;

16 transmitting a voice data packet by a first digital telephone to a first network de-  
17 vice;

18 transmitting, by said first network device, a replica packet of said voice data  
19 packet onto said first link for transmission through said first desired path through said  
20 computer network to a second network device;

21 transmitting, by said first network device, a replica packet of said voice data  
22 packet onto said second link for transmission through said second desired path through  
23 said computer network to said second network device; and

24 converting by a second digital telephone a first replica packet of said voice data  
25 packet received by said second network device into audible sound, and discarding any  
26 subsequently received replica packets of said voice data packet.

1 7. (Original) The method of claim 6 further comprising: selecting said first replica  
2 packet of said voice data packet by said second network device.

1 8. (Original) The method of claim 6 further comprising: selecting said first replica  
2 packet of said voice data packet by said second digital telephone.

1 9. (Original) The method of claim 6 further comprising: selecting said first network de-  
2 vice to be a layer 2 switch.

1 10. (Original) The method of claim 6 further comprising: selecting said first network  
2 device to be a router.

1 11. (Previously Presented) The method of claim 6 further comprising:

2 writing a sequence number into said voice data packet by said first digital tele-  
3 phone;

4 writing said sequence number into each said replica packet; and

5 using said sequence number to determine the first received replica of said voice  
6 data packet by said second network device.

1 12. (Currently Amended) A computer readable device having instructions written  
2 thereon for practicing [[the]] a method of,

3 receiving a voice data packet by a network device, replicating said voice data  
4 packet, and transmitting replica packets onto a first link and a second link;

5 assigning low cost to links, including said first link, in a first desired path through  
6 said computer network, said cost used by Link State Packet Routing protocol (LSP pro-  
7 tol) to select a route through said network;

8 assigning low cost to links, including said second link, in a second desired path  
9 through said computer network; and

10 assigning high costs to links between said first desired path and said second de-  
11 sired path, so that in response to assigning low costs to links in said first and second de-  
12 sired paths, LSP protocol selects said first and second desired paths for transmitting said  
13 replica packets through said network, respectively, and in response to high costs assigned  
14 to said links between said first and second desired paths, LSP does not select links that  
15 would create a convergence of said first and second desired paths [[claim 5]].

1 13. (Currently Amended) Electromagnetic signals travelling on a computer network,  
2 said electromagnetic signals carrying instructions for execution on a processor for prac-  
3 ticing [[practice of the]] a method of,

4       receiving a voice data packet by a network device, replicating said voice data  
5       packet, and transmitting replica packets onto a first link and a second link;

6       assigning low cost to links, including said first link, in a first desired path through  
7       said computer network, said cost used by Link State Packet Routing protocol (LSP pro-  
8       tol) to select a route through said network;

9       assigning low cost to links, including said second link, in a second desired path  
10       through said computer network; and

11       assigning high costs to links between said first desired path and said second de-  
12       sired path, so that in response to assigning low costs to links in said first and second de-  
13       sired paths, LSP protocol selects said first and second desired paths for transmitting said  
14       replica packets through said network, respectively, and in response to high costs assigned  
15       to said links between said first and second desired paths, LSP does not select links that  
16       would create a convergence of said first and second desired paths [[claim 5]].

1       14. (Previously Presented) The method of claim 5 wherein LSP routing selects links that  
2       would create a convergence of said first and second desired paths upon failure of a link in  
3       either said first and second desired paths.

1       15. (Previously Presented) A method for use with transmitting a packet from a source to  
2       a destination, said method comprising the steps of:

3               assigning a low cost, in a Link State Packet (LSP) routing sense, to links on two  
4       or more packet paths from said source to said destination; and

5               assigning a high cost, in an LSP routing sense, to links that would connect each of  
6       said two or more packet paths to each other, said high cost effectively maintaining a non-  
7       converging separateness between said two or more packet paths.

1 16. (Previously Presented) The method as in claim 15, further comprising the steps of:  
2 assigning a unique sequence number to said packet;  
3 replicating said packet into two or more packets, each of said two or more packets  
4 carrying the same unique sequence number;  
5 transmitting said two or more packets over said low cost two or more packet  
6 paths, respectively;  
7 accepting, at said destination, a first of said two or more packets to arrive at said  
8 destination; and  
9 discarding, at said destination, any of said two or more packets to arrive at said  
10 destination after said first packet.

1 17. (Previously Presented) The method as in claim 16, wherein said steps of replicating  
2 and transmitting are performed on a network device.

1 18. (Previously Presented) The method as in claim 17, wherein said step of transmitting  
2 is performed over two or more ports of said network device.

1 19. (Previously Presented) The method as in claim 17, wherein said network device is a  
2 switch.

1 20. (Previously Presented) The method as in claim 17, wherein said network device is a  
2 router.

1 21. (Previously Presented) The method as in claim 15, wherein said packet originates  
2 from a digital telephone.

1 22. (Previously Presented) The method as in claim 15, wherein said packet terminates at  
2 a digital telephone.

1 23. (Previously Presented) The method as in claim 15, wherein said packet is a voice  
2 packet.

1 24. (Previously Presented) A system for use with transmitting a packet from a source to  
2 a destination, said system comprising:

3 a source network device having circuitry for:

- 4 (i) assigning a unique sequence number to said packet,
- 5 (ii) replicating said packet into two or more packets, each of said two  
6 or more packets carrying the same unique sequence number,
- 7 (iii) assigning a low cost, in a Link State Packet (LSP) routing sense, to  
8 links on two or more packet paths from said source to said destina-  
9 tion,
- 10 (iv) assigning a high cost, in an LSP routing sense, to links that would  
11 connect each of said two or more packet paths to each other, said  
12 high cost effectively maintaining a non-converging separateness  
13 between said two or more packet paths, and
- 14 (v) transmitting said two or more packets over said low cost two or  
15 more packet paths, respectively;

16 at least one subsequent network device on each of said two or more packet paths  
17 having circuitry for forwarding said packet along said respective packet path according to  
18 said low cost link arrangement in an LSP routing sense; and



19           a destination network device having circuitry for:

- 20                   (i)     accepting a first of said two or more packets to arrive at said desti-  
21                            nation network device, and
- 22                   (ii)    discarding any of said two or more packets to arrive at said desti-  
23                            nation network device after said first packet.

1    25. (Previously Presented) The system as in claim 24, wherein said initiating network  
2    device is a switch.

1    26. (Previously Presented) The system as in claim 24, wherein said initiating network  
2    device is a router.

1    27. (Previously Presented) The system as in claim 24, wherein said packet originates  
2    from a digital telephone.

1    28. (Previously Presented) The system as in claim 24, wherein said packet terminates at  
2    a digital telephone.

1    29. (Previously Presented) The system as in claim 24, wherein said packet is a voice  
2    packet.

1    30. (Previously Presented) A network device for use in sending packets from a source to  
2    a destination, comprising:

3           an input port for receiving packets from a source;

4 a processor for assigning a low cost, in a Link State Packet (LSP) routing sense,  
5 to links on two or more packet paths from said source to said destination, and assigning a  
6 high cost, in an LSP routing sense, to links that would connect each of said two or more  
7 packet paths to each other, said high cost effectively maintaining a non-converging sepa-  
8 rateness between said two or more packet paths; and

9 two or more output ports for transmitting said packets to a destination over said  
10 two or more packet paths.

1 31. (Currently Amended) An initiating network device, comprising:

2 an input port for receiving a packet; and

3 [[a plurality of]] at least two output ports for transmitting said packet, [[over a  
4 plurality of]] a first output port of said two output ports to transmit said packet over a  
5 first packet [[paths]] path and a second output port of said two output ports to transmit  
6 said packet over a second packet path, said first packet path and said second packet path  
7 leading to a single destination, [[each of said plurality of packet paths]] said first packet  
8 path and second packet path having a low cost in a Link State Packet (LSP) routing  
9 sense, each of said [[plurality of packet paths]] first packet path and said second packet  
10 path also maintaining a non-converging separateness between each other [[of said plu-  
11 rality of packet paths]] by having a high cost, in an LSP routing sense, assigned to links  
12 that would connect each of said [[plurality of packet paths]] first packet path and said  
13 second packet path to each other.

1 32. (Currently Amended) A destination network device, comprising:

2 [[a plurality of]] at least two input ports, a first input port of said at least two in-  
3 put ports to receive a plurality of packets over a first packet path and a second input port  
4 of said at least two input ports to receive a plurality of packets over a second packet path,  
5 [[for receiving a plurality of packets over a plurality of packet paths]] said first packet

6 path and said second packet path leading to a single destination, [[each of said plurality  
7 of packet paths]] said first packet path and said second packet path each having a low  
8 cost in a Link State Packet (LSP) routing sense, each of said [[plurality of packet paths]]  
9 first packet path and said second packet path also maintaining a non-converging sepa-  
10 rateness between each other [[of said plurality of packet paths]] by having a high cost,  
11 in an LSP routing sense, assigned to links that would connect each of said plurality of  
12 packet paths to each other;

13 circuitry for reading a unique sequence number on [[said]] each received packet,  
14 said circuitry accepting a first of said plurality of packets received with a unique se-  
15 quence number and discarding any other of said plurality of packets received with the  
16 same unique sequence number after said first packet has been received; and

17 an output port for transmitting said packet to a terminating destination.

1 33. (Previously Presented) A system for use with transmitting a packet from a source to  
2 a destination, said system comprising:

3 means for assigning a low cost, in a Link State Packet (LSP) routing sense, to  
4 links on two or more packet paths from said source to said destination; and

5 means for assigning a high cost, in an LSP routing sense, to links that would con-  
6 nect each of said two or more packet paths to each other, said high cost effectively main-  
7 taining a non-converging separateness between said two or more packet paths.

1 34. (Previously Presented) The system as in claim 33, further comprising:

2 means for assigning a unique sequence number to said packet;

3 means for replicating said packet into two or more packets, each of said two or  
4 more packets carrying the same unique sequence number;

5 means for transmitting said two or more packets over said low cost two or more  
6 packet paths, respectively;

7 means for accepting, at said destination, a first of said two or more packets to ar-  
8 rive at said destination; and

9 means for discarding, at said destination, any of said two or more packets to arrive  
10 at said destination after said first packet.

1 35. (Currently Amended) A computer readable device having instructions written  
2 thereon for practicing a [[the]] method of,

3 assigning a low cost, in a Link State Packet (LSP) routing sense, to links on two  
4 or more packet paths from said source to said destination; and

5 \_\_\_\_\_ assigning a high cost, in an LSP routing sense, to links that would connect each of  
6 said two or more packet paths to each other, said high cost effectively maintaining a non-  
7 converging separateness between said two or more packet paths [[claim 15]].

1 36. (Currently Amended) Electromagnetic signals travelling on a computer network,  
2 said electromagnetic signals carrying instructions for execution on a processor for  
3 [[practice of the]] practicing a method of,

4 assigning a low cost, in a Link State Packet (LSP) routing sense, to links on two  
5 or more packet paths from said source to said destination; and

6 \_\_\_\_\_ assigning a high cost, in an LSP routing sense, to links that would connect each of  
7 said two or more packet paths to each other, said high cost effectively maintaining a non-  
8 converging separateness between said two or more packet paths [[claim 15]].